

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A micro-electromechanical system, comprising a substrate ~~{S}~~ as well as a first micro-element ~~{1}~~ and a second micro-element ~~{2}~~, wherein

(a) the first micro-element ~~{1}~~ and the second micro-element ~~{2}~~ are connected to the substrate ~~{S}~~ and

(b) the first micro-element ~~{1}~~ has a first face ~~{3a}~~ and the second micro-element ~~{2}~~ has a second face ~~{4a}~~, which faces ~~{3a, 4a}~~ face one another and are produced by a structuring method,

~~characterised in~~ wherein

(d) ~~that~~ the first micro-element ~~{1}~~ contains a switch section ~~{5}~~ by which it is bistably switchable between an initial position ~~{A}~~ and a working position ~~{B}~~, and

(e) ~~that~~ the distance between the first face ~~{3a}~~ and the second surface ~~{4a}~~ in the working position ~~{B}~~ of the first micro-element ~~{1}~~ is smaller than a minimal distance producible by the structuring method between the first face ~~{3a}~~ and the second face ~~{4a}~~.

2. (Currently Amended) The micro-electromechanical system according to claim 1, characterised in wherein

(a) ~~that~~ the first micro-element (1) has a first surface (3) which is the same as the first face (3a) or, if the first face (3a) is provided with a first coating (3b), is the same as the surface of this coating (3b) and

(b) ~~that~~ the second micro-element (2) has a second surface (4) which is the same as the second face (4a) or, if the second face (4a) is provided with a second coating (4b), is the same as the surface of this coating (4b).

3. (Currently Amended) The micro-electromechanical system according to claim 2, wherein

(a) the second micro-element (2) has a first fixed end (10) fixedly connected to the substrate (S) and a movable part (11),

characterised in wherein

(b) ~~that~~ the first surface (3) and the second surface (4) are electrically non-conducting and

(c) ~~that~~ the first surface (3) and the second surface (4) have contact points in the working position (B) and

(d) ~~that~~ the second micro-element (2) is thereby switchable from a switch-off position (A) to a switch-on position (B'), that in the working position (B) of the first micro-element (1) the

movable part (11) of the second micro-element (2) is movable by electrostatic forces between the first micro-element (1) and the second micro-element (2).

4. (Currently Amended) The micro-electromechanical system according to claim 3, ~~characterised in~~ wherein

(a) ~~that~~ the first micro-element (1) comprises an electrode (9), which electrode (9) contains the first surface (3) and

(b) ~~that~~ the electrode (9) and the second micro-element (2) are constructed such that in the switch-on position (B') of the second micro-element (2) the first surface (3) and the second surface (4) are in full-area contact.

5. (Currently Amended) The micro-electromechanical system according to claim 4, ~~characterised in that~~ wherein the electrode (9) has a gap-forming surface (12) which is constructed such that it is set back in a step fashion with respect to the first surface (3) and with the second micro-element (2) encloses a gap (13) when the first micro-element (1) is in the working position (B) and the second micro-element (2) is in the switch-on position (B').

6. (Currently Amended) The micro-electromechanical system according to ~~any one of claims 3 to 5, characterised in that~~ claim 3, wherein the movable part (11) of the second micro-element (2) has a first region (14) and a second region (15), wherein the first region (14)

- is arranged between the second region (15) and the first fixed end (10) of the second micro-element (2),

- comprises a part of the second surface (4) and

- is constructed as less stiff than the second region (15).

7. (Currently Amended) The micro-electromechanical system according to ~~any one~~ of ~~claims 3 to 5, characterised in~~ claim 3, wherein

(a) ~~that~~ the micro-electromechanical system has two fixed contacts (17, 18) fixedly connected to the substrate, and

(b) ~~that~~ the movable part (14) of the second micro-element (2) has an electrically conductive contact region (16),

- which contact region (16) is arranged in the area of the end of the second micro-element (2) opposite to the first fixed end (10) of the second micro-element, and

- through which contact region (16) in the switch-on position (B') of the second micro-element (2) the two fixed contacts (17, 18) are interconnected in a conducting fashion.

8. (Currently Amended) The micro-electromechanical system according to claim 7, ~~characterised in~~ wherein

(a) ~~that~~ the micro-electromechanical system comprises a third micro-element (1')

- which is bistably switchable,

- which is connected to the substrate (S) and

- which is arranged in a region which lies on the side of the second micro-element (2) facing away from the first micro-element (1) and

(b) that the micro-electromechanical system has two further fixed contacts ~~(17', 18')~~ which further fixed contacts ~~(17', 18')~~ are fixedly connected to the substrate and are arranged in a region which lies on the side of the second microelement (2) facing away from the fixed contacts ~~(17, 18)~~,

(c) that the movable part ~~(11)~~ of the second micro-element (2) has a further electrically conductive contact region ~~(12')~~ which is arranged in the area of an end of the second micro-element (2) opposite to the first fixed end ~~(10)~~ of the second micro-element (2), on the side of the second micro-element (2) facing away from the contact region ~~(16)~~, and

(d) wherein the third micro-element ~~(1')~~ interacts with the second micro-element (2) and with the further fixed contacts ~~(17', 18')~~ in a fashion similar to that in which the first micro-element (1) interacts with the second micro-element (2) and with the fixed contacts ~~(17, 18)~~.

9. (Currently Amended) The micro-electromechanical system according to claim 6 ~~and claim 7 or according to claim 6 and claim 8, characterised in wherein~~

~~that the contact region (16) is arranged in the second region (15) of the movable part (11) of the second micro-element (2).~~

10. (Currently Amended) The micro-electromechanical system according to claim 1, ~~characterised in wherein~~

(a) ~~that the micro-electromechanical system comprises a third micro-element (1') which~~
- is connected to the substrate ~~(S)~~ and

- has a third face ~~(3a')~~,
- (b) ~~that~~ the second micro-element ~~(2)~~ contains a switch section which has
 - a first fixed end ~~(10)~~ fixedly connected to the substrate ~~(S)~~,
 - a second fixed end ~~(10')~~ fixedly connected to the substrate ~~(S)~~,
 - a movable part ~~(11)~~ arranged between these two fixed ends ~~(10, 10')~~ and
 - a fourth face ~~(4a')~~

and

- (c) through which switch section the second micro-element ~~(2)~~ is switchable between a switch-off position ~~(A')~~ and a switch-on position ~~(B')~~,

wherein

- (d) the movable part ~~(11)~~ of the second micro-element ~~(2)~~ comprises an electrically conductive contact region ~~(16)~~,
- (e) the second face ~~(4a)~~ is arranged between the first fixed end ~~(10)~~ and the contact region ~~(16)~~, and
- (f) the fourth face ~~(4a')~~ is arranged between the second fixed end ~~(10')~~ and the contact region ~~(16)~~,

(g) the third face (3a') and the fourth face (4a') are produced by the structuring method and are facing one another, and

(h) that the third micro-element (1') contains a switch section through which it is bistably switchable between an initial position (A) and a working position (B), and

(i) that the distance between the third surface (3a') and the fourth face (4a') in the working position (B) of the third micro-element (1') is smaller than a minimal distance producible by the structuring method between the third face (3a') and the fourth face (4a').

11. (Currently Amended) The micro-electromechanical system according to claim 10, characterised in wherein

(a) that the third micro-element (1') has a third surface (3') which is the same as the third face (3a') or, if the third face (3a') is provided with a third coating (3b'), is the same as the surface of this coating (3b'), and

(b) that the second micro-element (2) has a fourth face (4') which is the same as the fourth face (4a') or, if the fourth face (4a') is provided with a fourth coating (4b'), is the same as the surface of this coating (4b').

12. The micro-electromechanical system according to claim 11, characterised in wherein

(a) that the micro-electromechanical system contains two fixed contacts (17, 18) fixedly connected to the substrate (S),

(b) ~~that~~ the second micro-element (2) is thereby switchable from its initial position (A) into its switch-on position (B), that in the working position (B) of the first micro-element (1) and of the third micro-element (1') the movable part (11) of the second micro-element (2) is elastically movable by electrostatic forces between the first microelement (1) and the second micro-element (2) and between the third micro-element (1') and the second micro-element (2), and

(c) ~~that~~ in the switch-on position (B) of the second micro-element (2) the two fixed contacts (17, 18) are interconnected by the contact region (16) in a conducting fashion.

13. (Currently Amended) The micro-electromechanical system according to claim 12, characterised in wherein

(a) ~~that~~ the micro-electromechanical system comprises

- a fourth micro-element (19) and
- a fifth micro-element (20)

(b) which micro-elements (19, 20)

- are connected to the substrate (S) in an area which lies on the side of the second micro-element (2) facing away from the fixed contacts (17, 18),
- contains switch sections through which they are bistably switchable between an initial position (A) and a working position (B), and

- which each have a contact electrode (21, 22) provided with an electrically conductive coating, and

(c) ~~that in~~ the switch-off position (A') of the second micro-element (2) in the working position (~~B~~) of the fourth microelement (19) and the fifth micro-element (20) the two contact electrodes (21, 22) are interconnected by the contact region (16) in an electrically conducting fashion.

14. (Currently Amended) The micro-electromechanical system according to ~~any one of claims 10 to 13, characterised in that~~ claim 10, wherein the second micro-element (2) is bistably elastically switchable between its initial position (A') and its switch-on position (B').

15. (Currently Amended) The micro-electromechanical system according to claim 14, ~~characterised in~~ wherein

(a) ~~that~~ the micro-electromechanical system comprises

- a sixth micro-element (23) and

- a seventh micro-element (24),

(b) which micro-elements (23, 24)

- are connected to the substrate (~~S~~),

- are arranged on the side of the second micro-element (2) which is facing away from the second surface (4) and the fourth surface (4'),

- contain switch sections through which they are bistably switchable between an initial position (A) and a working position (B),

(c) ~~that~~ the sixth micro-element (23) has a fifth face (25a),

(d) ~~that~~ the second micro-element (2) has a sixth face (26a) which is arranged on the side of the second micro-element (2) facing away from the second surface (4) between the first fixed end (10) and the contact region (16),

(e) ~~wherein~~ the fifth face (25a) and the sixth face (26a) are facing one another and are produced by the structuring method,

(f) ~~that~~ the seventh micro-element (24) has a seventh face (25a'),

(g) ~~that~~ the second micro-element (2) has an eighth face (26a') which is arranged on the side of the second micro-element (2) facing away from the fourth surface (4') between the second fixed end (10') and the contact region (16),

(h) ~~wherein~~ the seventh face (25a') and the eighth face (26a') are facing one another and produced by the structuring method, and

(i) ~~that~~ the distance between the fifth face (25a) and the sixth face (26a) in the working position (B) of the sixth micro-element (23) is smaller than a minimal distance producible by the structuring method between the fifth face (25a) and the sixth face (26a), and

(i) ~~that~~ the distance between the seventh face (25a') and the eighth face (26a') in the working position (B) of the seventh micro-element (24) is smaller than a minimal distance

producible by the structuring method between the seventh face (25a') and the eighth face (25a', 26a') and

(j) that the second micro-element (2) is thereby switchable from its switch-on position (B') into its switch-off position (A'), that in the working position (B) of the sixth micro-element (23) and the seventh micro-element (24) the movable part (11) of the second micro-element (2) is elastically movable by electrostatic forces between the sixth micro-element (23) and the second micro-element (2) and between the seventh micro-element (24) and the second micro-element (2).

16. (Currently Amended) The micro-electromechanical system according to ~~any one of claims 14 or 15~~ claim 14, wherein

(a) the substrate (S) is constructed as a flat extensive solid with a principal surface, and

(b) the micro-elements (~~1, 1', 2, 19, 20, 23, 24~~) are constructed as regular prismatic bodies whose base surfaces are aligned parallel to the principal surface, ~~characterised in~~ wherein

(c) that the movable part of the second micro-element (2)

- is constructed as a regular prismatic body and

- is laterally movable and

(d) that the base surface of the regular prismatic body forming the movable part (11)

either

- has the form of a symmetrical antinode in the switch-off position (A') and

- has the form of an asymmetric antinode in the switch-on position (B'),

or

- describes two parallel cosinusoidal lines which are interconnected at the centre (8) between their two ends (6, 7).

17. (Currently Amended) The micro-electromechanical system according to ~~any one~~ of claims 1 to 16 claim 1, wherein

(a) the substrate (S) is constructed as a flat extensive body with a principal surface and

(b) ~~the micro-elements~~ each micro-element is (1, 1', 2, 19, 20, 23, 24) are constructed as regular prismatic bodies whose base surfaces are aligned parallel to the principal surface, ~~characterised in~~ wherein

(c) ~~that~~ there is at least one micro-element (1, 1', 2, 19, 20, 23, 24) bistably switchable between an initial position (A) and a working position (B), whose switch section contains

- a first fixed end fixedly connected to the substrate (S),

- a second fixed end fixedly connected to the substrate (S) and

- a movable part arranged between these two fixed ends,

(d) which movable part

- is constructed as a regular prismatic body and
- is laterally movable and

(e) that the base surface of the regular prismatic body forming the movable part

either

- has the form of a symmetrical antinode in the switch-off position (A') and
- has the form of an asymmetric antinode in the switch-on position (B'),

or

- describes two parallel cosinusoidal lines which are interconnected at the centre (8) between their two ends.

18. (Currently Amended) The micro-electromechanical system according to claim 3, ~~characterised in that~~ wherein

the movable part (11) of the second micro-element (2) is elastically deformable from the initial position A to the working position A by switching the first micro-element (4).

19. (Currently Amended) The micro-electromechanical system according to claim 18, ~~characterised in that~~ wherein

- (a) ~~that~~ the micro-electromechanical system has two fixed contacts ~~(17, 18)~~ fixedly connected to the substrate and
- (b) that the movable part ~~(14)~~ of the second micro-element ~~(2)~~ has an electrically conductive contact region ~~(16)~~,
- which contact region ~~(16)~~ is arranged in the area of an end of the second micro-element ~~(2)~~ opposite to the first fixed end ~~(10)~~ of the second micro-element ~~(2)~~ and
- through which contact region ~~(16)~~ in the switch-off position ~~(A')~~ of the second-microelement ~~(2)~~ the two fixed contacts ~~(17, 18)~~ are interconnected in a conducting fashion.

20. (Currently Amended) The micro-electromechanical system according to ~~any one of claims 1 to 9 or 18 or 19~~ claim 1, wherein

- (a) the substrate ~~(S)~~ is constructed as a flat extensive body with a principal surface, characterised in
- (b) ~~that~~ the switch section ~~(5)~~ of the first micro-element ~~(1)~~ is horizontally movable and
- (c) ~~that~~ the movable part ~~(14)~~ of the second micro-element ~~(2)~~ is horizontally movable.

21. (Currently Amended) A method for manufacturing a micro-electromechanical system in which method

- (a) a first micro-element ~~(1)~~ connected to the substrate is produced from a substrate ~~(S)~~ and

(b) a second micro-element (2) connected to the substrate is produced from a substrate, and

(c) using a structuring method, a first face (3a) of the first micro-element (1) and a second face (4a) of the second micro-element (2) are formed which faces (3a, 4a) face one another and are at a distance from one another,

~~characterised in~~ wherein

(d) ~~that~~ the first micro-element (1) is formed such that

- it is located in an initial position (A),
- it is bistably switchable from the initial position (A) into a working position (B) and
- the distance of the first face (3a) from the second face (4a) in the working position (B) is smaller than a minimal distance producible by the structuring method between the first face (3a) and the second face (4a) and

(e) ~~that~~ after forming the first face (3a) and the second face (4a) by the structuring method, the first micro-element (1) is switched into the working position (B).

22. (Currently Amended) The method of manufacture according to claim 21, ~~characterised in that~~ wherein before switching the first micro-element (1) into the working position (B), the first face (3a) of the first micro-element (1) is provided with a first electrically conducting or electrically non-conducting coating (3b),

and/or

the second face (4a) of the second micro-element (2) is provided with a second electrically conducting or electrically non-conducting coating (4b).

23. (Currently Amended) The method of manufacture according to claim 21, wherein
~~any one of claims 21 to 22, characterised in that one of the electro-mechanical systems is~~
~~manufactured according to any one of claims 1 to 20.~~ a resulting micro-electro mechanism
system comprises a substrate as well as a first micro-element and a second micro-element,
wherein

(a) the first micro-element and the second micro-element are connected to the substrate
and

(b) the first micro-element has a first face and the second micro-element has a second
face, which faces face one another and are produced by a structuring method,

wherein

(d) the first micro-element contains a switch section by which it is bistably switchable
between an initial position and a working position, and

(e) the distance between the first face and the second surface in the working position of
the first micro-element is smaller than a minimal distance producible by the structuring
method between the first face and the second face.